REMARKS

This preliminary amendment is entered in response to the Advisory Action of March 11, 2004 (the "Advisory Action") and presumes prior entry of the after-final amendment filed February 18, 2004. Applicant also petitions for a one-month extension of time to respond to the final Action of December 18, 2003 (the "final Office Action"). Thus, the present amendment and the after-final amendment of February 18, 2004 provide a full response to the Advisory Action of March 11, 2004 and the final Official Action of December 18, 2003 (Paper No. 12022003). Reconsideration of the application in light of the forgoing amendment and the following remarks is respectfully requested.

Pending claims 8-21, 24, 46 and 47 are withdrawn subject to a restriction requirement. Claims 1 and 35 have been amended, and new claims 48-55 have been added. Thus, claims 1-7, 22, 23, 25-45 and 48-55 are currently pending for the Examiner's consideration.

The Advisory Action indicated that claim 36 has been allowed. Applicant wishes to thank the Examiner for the allowance of claim 36. New claims 48-55 are dependent on claim 36. Therefore, new claims 48-55 should be in condition for allowance based on the allowable subject matter of claim 36. Notice to this effect is respectfully requested.

In the final Office Action, claims 46 and 47 were declared to be drawn to a non-elected invention and were withdrawn from consideration. Applicant respectfully renews traverse of this withdrawal of claims 46 and 47. Claims 46 and 47 and drawn to the same invention as recited in pending claims 1 and 26, respectively. Claims 1 and 26 each recite a process and claims 46 and 47 recite systems for performing the processes of claims 1 and 26, respectively.

MPEP § 806.05(e) expressly states that: "If the apparatus claims include a claim to 'means' for practicing the process, the claim is a linking claim and must be examined with the elected invention." (emphasis added). In the present case, claims 46 and 47 are "means" claims reciting means for performing the method steps recited in claims 1 and 26, respectively. Thus, according to the MPEP, claims 46 and 47 "must" be examined and cannot be withdrawn from consideration.

The Advisory Action argues that this position is not well taken because Applicant elected process over apparatus claims without traverse. This is incorrect. Applicant did not elect "process claims." Applicant elected the invention covered by claims 1 and 26 et al. New claims 46 and 47 are directed to the same invention.

Applicant is not traversing the restriction requirement made, Applicant is merely trying to add further claims to the elected invention. MPEP § 806.05(e) expressly allows the Applicant to include such "linking claims" in the examination of an elected invention. Please note that the MPEP states that such claims "must" be examined with the elected invention. Burden on the examiner is not a consideration when the claims are all directed to the same invention as in the present case.

Therefore, Applicant again requests the reinstatement and examination of claims 46 and 47.

Next, the final Office Action had rejected claims 1-7, 22, 23 and 25-45 under 35 U.S.C.
§ 112, first paragraph, as failing to comply with the written description requirement, and claim 45 under 35 U.S.C. § 112, second paragraph, due to a minor informality. However, the

Advisory Action indicated that these rejections had been overcome by the amendments and arguments offered in the after-final amendment of February 18, 2004.

With regard to the prior art, claims 1-5 and 22 have been rejected under 35 U.S.C. § 103(a) as unpatentable in view of the combined teachings of U.S. Patent No. 5,303,141 to Batchelder, et al. ("Batchelder") and U.S. No. 5,980,812 to Lawton ("Lawton"). Claims 6, 7 and 23 have been rejected under § 103 in view of the combined teachings of Batchelder, Lawton and U.S. Patent No. 6,214,276 to Gelbart ("Gelbart"). For at least the following reasons, these rejections are respectfully traversed.

Claim 1 recites

> A method for fabricating an article using photo-activatable building material, comprising the steps of:
>
> depositing a uniform layer of the photo-activatable building material;
>
> scanning the layer using a plurality of light-emitting centers, wherein the light-emitting centers are moved over the layer and selectively activated to selectively photo-activate the layer of photo-activatable building material in accordance with fabrication of said article; and
>
> repeating the steps of depositing a uniform layer, with each layer being applied over an immediately previous layer, and scanning the layer with the plurality of light-emitting centers to selectively photo-activate the building material until the article is fabricated.

In contrast, neither Batchelder nor Lawton teaches or suggest "scanning the layer using a plurality of light-emitting centers, wherein the light-emitting centers are moved over the layer and selectively photo-activate the layer of photo-activatable building material in accordance with fabrication of said article" as claimed.

Batchelder teaches that an application of light, apparently from a single non-moving source, may be used to cure extruded material. "[T]he selected material must cure before losing its extruded shape." (Batchelder, col. 7, lines 20-25). The Advisory Action alleges

that Batchelder teaches "scanning of deposited building material with 'a plurality of laser diodes' (column 9 line 58)." This is a mischaracterization of what Batchelder teaches. Batchelder never states that the plurality of laser diodes are "scanned" over deposited building material.

Thus, Batchelder does not teach or suggest "scanning" a plurality of light-emitting centers or "selective" photo-activation of a layer of building material in accordance with an article being fabricated. Batchelder instead merely teaches exposing the entire extruded shape with a light source to cure the extrusion in the extruded shape.

Lawton teaches using a single light source with a scanning mirror to cure building material. (Lawton, col. 6, lines 52-54). Thus, Lawton also fails to teach scanning a plurality of light-emitting centers to selectively photo-activate the layer of photo-activatable building material as claimed.

Thus, the combined teachings of Batchelder and Lawton fail to teach or suggest the featurs recited in claim 1. "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). Therefore, the rejection of claims 1-7 should be reconsidered and withdrawn.

Moreover, the light exposure systems taught by Batchelder and Lawton are largely incompatible. It is unclear how or why one of skill in the art would combine the teachings of these two references. Batchelder calls expressly for a system in which a large amount of light is used to quickly cure an extruded object before it looses its extruded shape. In contrast, Lawton uses a mirror to more slowly scan light from a single light source over building material. For at least this additional reason, the combination of Batchelder and Lawton is insufficient and should be reconsidered and withdrawn.

Claim 22 recites:

> A method for fabricating an article using photo-activatable building material wherein light-emitting diode polymerization is utilized, comprising the steps of:
>
> laying down a uniform layer of photo-activated polymer with a thickness suitable for selective photo-activation;
>
> polymerizing a cross section of the article by selectively exposing the layer of photo-activated polymer to light;
>
> raising an applicator used to lay down said layer of photo-activated polymer; and
>
> repeating laying down layers and polymerizing a cross section of the article in each layer until the article is fabricated.

In contrast, neither Batchelder nor Lawton teach or suggest the combination of "laying down a uniform layer photo-activated polymer" and "raising an applicator used to lay down said layer of photo-activated polymer" as claimed.

Batchelder does not teach or suggest an applicator that lays down a uniform layer of building material. Rather, Batchelder teaches depositing successive drops of material, not a uniform layer. The Advisory Action points out that Batchelder does teach an applicator with three or more degrees of movement. While this may be correct, Batchelder does not teach or suggest using the applicator to deposit a uniform layer of building material, but rather to extrude a particular shape that is then rapidly cured.

Lawton teaches a doctor blade (104) that scraps building material into a recess in a piston (102). Thus, Lawton does not teach or suggest an applicator "used to lay down [a] layer" of building material that is then "raised" prior to deposition of the next layer.

Thus, the combined teachings of Batchelder and Lawton fail to teach or suggest "laying down a uniform layer photo-activated polymer" and "raising an applicator used to lay down said layer of photo-activated polymer" as claimed in claim 22. "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). Therefore, the rejection of claims 22, 23 and 25 should be reconsidered and withdrawn.

Claims 26-34 were rejected as unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Batchelder, Lawton, Gelbart, U.S. Patent No. 5,764,263 to Lin "Lin" and U.S. Patent No. 4,029,006 to Mercer "Mercer." For at least the following reasons, this rejection is respectfully traversed.

Claim 26 recites:

> A method for fabricating an article using photo-activatable building material, the method comprising:
>
> depositing a uniform layer of the photo-activatable building material to a preselected surface with an applicator;
>
> scanning the layer using a plurality of light-emitting centers to selectively photo-activate the layer of photo-activatable building material in accordance with fabrication of said article;
>
> repeating the steps of depositing a uniform layer, with each layer being applied over an immediately previous layer, and scanning each layer with the plurality of light-emitting centers to selectively photo-activate the building material until the article is fabricated;
>
> curing the article in a curing oven following fabrication; and
>
> automatically transporting the article between said applicator and said curing oven with a transport system.

As demonstrated above, Batchelder and Lawton fail to teach or suggest scanning a layer of building material with "a plurality of light-emitting centers to selectively photo-activate the layer of photo-activatable building material." The Office Action does not allege

or suggest that Gelbart, Lin or Mercer teach or suggest the claimed scanning with a plurality of light-emitting centers. Therefore, the cited combination of prior art fails to teach or suggest at least the "scanning" element of claim 26.

Additionally, Lin is cited as teaching a transport system for transporting an article being fabricated "between said applicator and said curing oven." However, Lin does not teach or suggest a transport system between an applicator and a curing oven in a system for fabricating an article. Lin teaches "[a] paper curl reduction process" in a printer. (Lin, Abstract). Applicant does not dispute that paper transport systems are known in printers. However, Lin does not teach or suggest the claimed "transporting the article between said applicator and said curing oven with a transport system."

The Advisory Action fails to address the point that no reference of record shows a transport system for transporting an article being fabricated between a building material applicator and a curing oven. It is, of course, true that transport systems, such as that shown by Lin, are known in various arts. However, no reference of record teaches or suggests the claimed automatic transporting of an article being fabricated between a building material applicator and a curing oven.

For at least these reasons, the cited combination of prior art fails to teach or suggest all the features of claim 26. Therefore, the rejection of claims 26-33 should be reconsidered and withdrawn.

Claim 34 recites:

> A method for fabricating an article using photo-activatable building material, the method comprising:
>
> depositing a uniform layer of the photo-activatable building material to a preselected surface with an applicator;

scanning the layer using a plurality of light-emitting centers to selectively photo-activate the layer of photo-activatable building material in accordance with fabrication of said article;

repeating the steps of depositing a uniform layer, with each layer being applied over an immediately previous layer, and scanning each layer with the plurality of light-emitting centers to selectively photo-activate the building material until the article is fabricated;

rinsing the article in a rinsing unit following fabrication; and

automatically transporting the article between said applicator and said rinsing unit with a transport system.

As demonstrated above, Batchelder and Lawton fail to teach or suggest scanning a layer of building material with "a plurality of light-emitting centers to selectively photo-activate the layer of photo-activatable building material." The Office Action does not allege or suggest that Gelbart, Lin or Mercer teach or suggest the claimed scanning with a plurality of light-emitting centers. Therefore, the cited combination of prior art fails to teach or suggest at least the "scanning" element of claim 34.

Additionally, as demonstrated above, Lin does not teach or suggest a transport system between an applicator and a rinsing unit in a system for fabricating an article. Lin teaches "[a] paper curl reduction process" in a printer. (Lin, Abstract). Lin does not teach or suggest the claimed "transporting the article between said applicator and said rinsing unit with a transport system."

For at least these reasons, the cited combination of prior art fails to teach or suggest all the features of claim 34. Therefore, the rejection of claim 34 should be reconsidered and withdrawn.

Claim 35 was rejected under 35 U.S.C. § 103(a) over the combined teachings of Batchelder, Lawton, U.S. Patent No. 6,126,884 to Kerekes et al. ("Kerekes") and U.S. Patent

No. 4,492,966 to Seki et al. ("Seki"). For at least the following reasons, this rejection is respectfully traversed.

Claim 35 recites:

> A method for fabricating an article using photo-activatable building material, the method comprising:
>
> depositing a uniform layer of the photo-activatable building material to a preselected surface with an applicator;
>
> scanning the layer using a plurality of light-emitting centers to selectively photo-activate the layer of photo-activatable building material in accordance with fabrication of said article; and
>
> repeating the steps of depositing a uniform layer, with each layer being applied over an immediately previous layer, and scanning each layer with the plurality of light-emitting centers to selectively photo-activate the building material until the article is fabricated;
>
> wherein said plurality of light-emitting centers are disposed in a modified inkjet print cartridge which is separate from said applicator, where said modified inkjet print cartridge is modified to contain said light-emitting centers and no longer contains nor dispenses ink.

(emphasis added).

As demonstrated above, Batchelder and Lawton fail to teach or suggest scanning a layer of building material with "a plurality of light-emitting centers to selectively photo-activate the layer of photo-activatable building material." The Office Action does not allege or suggest that Gelbart, Lin or Mercer teach or suggest the claimed scanning with a plurality of light-emitting centers. Therefore, the cited combination of prior art fails to teach or suggest at least the "scanning" element of claim 35.

Additionally, the cited prior art fails to teach or suggest "wherein said plurality of light-emitting centers are disposed in a modified inkjet print cartridge which is separate from said applicator, where said modified inkjet print cartridge is modified to contain said light-emitting centers and no longer contains nor dispenses ink." Seki is cited by the final Office Action as teaching this subject matter. However, Seki does not teach or suggest a plurality of light-emitting centers in an inkjet print cartridge.

Seki teaches a carriage (CA) in a printing device that is used to both print and optically scan printed material. Consequently, the carriage may include an inkjet printhead. (Seki, col. 22, lines 7-11). Additionally, the carriage includes a scanning unit comprising LEDs (LE1-LE4) to illuminate the printed material and photosensor elements (CD1-CD8) to optically scan the illuminated printing. (Seki, col. 21, lines 50-56). Thus, the inkjet printhead is separate from the LEDs of the scanning unit, although both are mounted on the same carriage. The inkjet printhead continues to function as a printhead, dispensing ink. Thus, Seki fails to teach or suggest a plurality of light-emitting centers are disposed **in** a modified inkjet print cartridge which is separate from said applicator where the print cartridge is modified to contain the light-emitting centers and no longer contains nor dispenses ink as claimed.

For at least these reasons, the cited combination of prior art fails to teach or suggest all the features of claim 35. Therefore, the rejection of claims 35 and 37-45 should be reconsidered and withdrawn.

In addition to the independent claims discussed above, the various dependent claims in the application also recite subject matter that is not taught or suggested by the prior art of record.

For example, claim 3 recites: "wherein scanning is accomplished using a modified printing cartridge that includes, located at an orifice plate, at least one of: light focusing devices and light baffling devices." Similarly, claim 29 recites: "wherein scanning is accomplished using a modified printing cartridge that includes light directing devices located in an orifice plate."

In contrast, the final Office Action fails to indicate how or where the cited prior art teaches a printing cartridge with light focusing or baffling devices located **at** an orifice plate or light directing devices located **in** an orifice plate. Actually, this subject matter is not taught or suggested by the prior art of record.

Claim 4 recites: "wherein the light focusing devices include lenses at nozzle locations and wherein the lenses are set at predetermined distances from the light-emitting centers." Similarly, claim 30 recites: "wherein the light directing devices include lenses at nozzle locations and wherein the lenses are set at predetermined distances from the light-emitting centers." Again, the final Office Action does not indicate how or where this subject matter is taught in the cited prior art references.

Claim 5 recites: "wherein depositing a layer of the photo-activatable building material is accomplished by one of: silk-screening, spraying, or spinning the building material in a manner that deposits a uniform layer of the building material onto the preselected surface." Similar subject matter is recited in claims 31 and 41.

In contrast, Batchelder teaches depositing beads of material, while Lawton teaches scraping material with a doctor blade. The final Office Action fails to indicate how or where the prior art teaches depositing a uniform layer using any of the methods listed in claims 5, 31 and 41.

For any and all of these additional reasons, these various dependent claims are further patentable over the prior art of record. Notice to this effect is respectfully requested.

For the foregoing reasons, the present application is thought to be clearly in condition for allowance. Accordingly, favorable reconsideration of the application in light of these remarks is courteously solicited. If the Examiner has any comments or suggestions which could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

DATE: 8 April 2004

Steven L. Nichols
Registration No. 40,326

Steven L. Nichols, Esq.
Managing Partner, Utah Office
Rader Fishman & Grauer PLLC
River Park Corporate Center One
10653 S. River Front Parkway, Suite 150
South Jordan, Utah 84095

(801) 572-8066
(801) 572-7666 (fax)